

Comparative assessment of knowledge, attitude, and practice toward self-medication among health and non-health students at Daffodil International University, Dhaka (2022–2023)

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ABSTRACT

Self-medication, a popular self-care practice, is common throughout the world and is responsible for serious health complications. The present investigation assessed the knowledge, attitudes, and practices of self-medication among healthcare and non-healthcare students at Daffodil International University, Savar, Dhaka, Bangladesh. A cross-sectional survey of 240 students from the Pharmacy and Environmental Science Departments, ages 19 to 24, was carried out between October 2022 and January 2023. Socio-demographics, knowledge, attitudes, information sources, common medications, and diseases treated were all covered in the pre-tested questionnaire used to gather data. SPSS v16.0 with correlations and descriptive statistics was used for the analysis. Among 240 participants, 50.8% were health science students and 49.2% were non-health science students; 45.8% were male, and 54.2% were female. Most (74.2%, $p < 0.01$) were aged 21-22 years, mainly in the 4th year (43.3%, $p < 0.001$). Knowledge analysis showed 37.5% knew over-the-counter (OTC) drugs ($p < 0.001$) and 55% supported self-medication for minor illness. Common conditions treated were headache (49.2%), fever (23.3%), and cold (16.7%). Painkillers were the most used drugs (39.2%), with family members as the main source of advice (50%). Knowledge had a significant correlation with health science students ($p < 0.001$). Attitudes revealed 70% used self-medication in the last 6 months; 67.5% discouraged peers, 55.8% reused prescriptions, 73.3% read leaflets, and 61.2% consulted doctors for adverse effects. Previous experiences (74.2%) were the main reason for self-medication. Self-medication is widespread among university students. Health science students demonstrated better knowledge and awareness against self medication while contrasted to non-healthcare students. Awareness programs are needed for all groups.

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1. INTRODUCTION

Self-medication is a common aspect of patient behavior and self-care, which involves the use of drugs to manage perceived minor illnesses without a doctor's prescription [1]-[3]. Presently, the term "responsible self-medication" refers to the careful use of appropriate over-the-counter (OTC) medicines

when necessary [4]. The incidence of self-medication (SM) ranges from 25.6 to 73.6% in both industrialized and developing nations, and underdeveloped nations have higher rates of self-medication [5]. Analgesics, antipyretics, non-steroidal anti-inflammatory medications, and antibiotics are the pharmaceuticals that are used most frequently for self-medication [6]. Diverse groups exhibit different self-medication tendencies, which are impacted by a variety of variables, including age, sex, wealth, a focus on self-care, and medical expertise [7]-[9]. Particularly, healthcare workers like doctors, nurses, and pharmacists self-medicate more often than the general public [4].

WHO has noted that effective self-medication could be useful in the treatment of acute illnesses that don't need medical attention, can reduce the visiting time to a doctor, and suggests a less expensive alternative for managing regular problems [4]. Governments in numerous nations are also promoting self-medication and other forms of self-care for mild ailments. When persons safely self-medicate, treatment costs, travel expenses, and consultation times are all decreased [10]. Young adult university students are more likely to self-medicate due to their limited awareness of the risks associated with drug use, easy access to the internet, increased pharmaceutical advertising, and the ease of drug availability. It is a serious issue that poses a risk because several students no longer ask for medical treatment, instead purchase medicines based on the information from friends, family members, and the online [11].

Self-widespread use of medication and unfavorable effects have made it a global health challenge. Abuses of some medications and poor usage of others have both been linked to negative pharmacological effects [12], [13]. Self-medication puts one at risk for drug adverse effects, contributes to people delaying medical care too long, which makes their illness worse, and is one of the causes. Self-medication has two negative effects: drug dependence and hiding signs and symptoms of underlying illness [14], [15]. According to several studies, many university students from different areas were suffering from pharmacological side effects, such as experiencing severe disease conditions like drug toxicity and longer recovery time while applying self-medication [16]-[18]. The current situation in Bangladesh demonstrates that most people choose to take medications on their own initiative when they become ill rather than rushing to the hospital or doctor's office, which is typically affected by several common variables, including advice from family or friends [19]. But there are no comparative data about the prevalence or other information of self medication in the health and non-health university. Therefore, the goal of the current study was to ascertain the prevalence of self-medication and assess how the study year and the curricula affected self-medication among Daffodil International University students.

2. METHOD

This investigation was carried out at the Department of Pharmacy and the Department of English, Daffodil International University, Dhaka, Bangladesh. Two different departments were selected due to health and non-health issues. Data were collected from October 2022 to January 2023. Following a comprehensive review of the literature, a descriptive cross-sectional questionnaire was created in English. The questionnaire underwent validation and pretesting. The included participants were all students of the Pharmacy and English Departments of Daffodil International University. The purpose of the analysis was explained to the participants. The students who denied participating and who refused to share the necessary information were excluded from the study. All participants signed the consent form, and the Ethical Review Committee of the Faculty of Allied Health Sciences approved the study. A total of 240 undergraduate students with comparable ages and educational backgrounds were given questionnaires and included in this study [20].

Analysis of the collected data was done employing the SPSS software (version 16.0). The descriptive statistics, including frequency, crosstabs, exact, and Chi-square correlation, were used on the basis of different variables. The data was presented in the form of tables, texts, and figures. *($p < 0.05$), **($p < 0.01$), and ***($p < 0.001$) were taken as statistically significant, highly significant, and very highly significant, respectively, while correlation was considered [20].

3. RESULTS

From the total 250 questionnaires, 240 respondents were included as they returned the filled-out questionnaire, and the remaining 10 incomplete questionnaires were excluded from the study. Here, 122 and 118 respondents were undergraduate medical and non-medical students, respectively. Among the respondents, 54.2% (130) were female, and 45.8% (110) were male. The maximum respondents were from the 21-22 years age group (74.2%; 178), where 87.5% were Muslim and 43.3% (104) were study level-4 respondents (Table 1).

The findings of this study indicate that 94 (39.17%) of the healthcare respondents agreed with the definition of self-medication as the use of over-the-counter or non-prescribed medications without consulting a doctor, while 28 (11.67%) disagreed. The use of over-the-counter or non-prescribed medications without

consulting a doctor is the definition of self-medication, which 44 (18.33%) non-healthcare respondents agreed with, while 74 (30.83%) disagreed.

Self-medication from previous experiences (178, 74.2%), do not have time (104, 43.3%), clinic is too far (80, 33.3%), based on testimonials received from friends/family (138, 57.5%), self-medication is less expensive (144, 60.0%), because of long waiting time in hospital (146, 60.8%), have enough medical knowledge (156, 65.0%) and because of taking responsibility of own health (106, 44.2%) (Table 2). Among all respondents, 120 (50%), obtained information from family members before self-medicating, 42 (17%) reported on pharmacist as being their sources, 40 (17%) reported on old prescription, 14 (6%) reported on drug leaflet and internet, 6 (2.5%) reported on friends and 4 (1.67%) reported on physician (Figure 1). The study also illustrates the various reasons reported by students for self-medication (Table 2). Headache was the most common indication, cited by 118 students (49.17%), followed by fever (56 students, 23.33%), common cold/flu (40 students, 16.6%), and diarrhea (16 students, 6.66%).

Table 1. The socio-demographic information of participants (n = 240)

Parameters	Categories	Total number (%)	Health science (%)	Non-health science (%)
Number of participants		240	122 (50.8%)	118 (49.2%)
Gender	Male	110 (45.8%)	62 (56.34%)	48 (43.64%)
	Female	130 (54.2%)	60 (46.15%)	70 (53.85%)
Age	19-20	14 (5.8%)	12 (85.71%)	2 (14.29%)
	21-22	178 (74.2%)	96 (53.93%)	82 (46.07%)
	23-24	48 (20.0%)	14 (29.17%)	34 (70.83%)
	Muslim	210 (87.5%)	112 (53.33%)	98 (46.67%)
Religion	Christian	8 (3.3%)	4 (50.00%)	4 (50.00%)
	Traditionalist	22 (9.2%)	6 (27.17%)	16 (72.73%)
Study level	1 st Year	34 (14.2%)	8 (23.53%)	26 (76.47%)
	2 nd Year	44 (18.3%)	6 (13.64%)	38 (86.36%)
	3 rd Year	58 (24.2%)	32 (55.17%)	26 (44.83%)
	4 th Year	104 (43.3%)	76 (73.08%)	28 (26.92%)

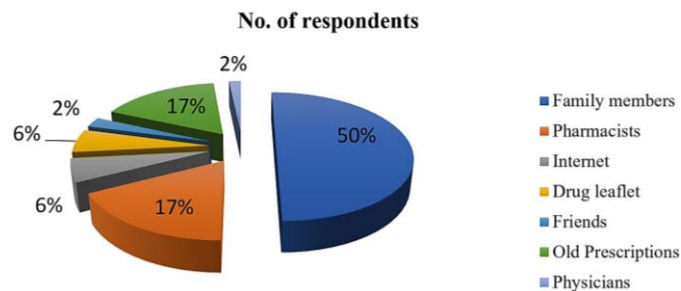


Figure 1. Sources of information before self-medication

Table 2. Reasons of self-medication

Reasons	Categories	Number of participants			p-value
		Total (%)	Health science (%)	Non-health science (%)	
Do not have time	Yes	104 (43.3%)	40 (38.46%)	64 (61.54%)	0.018
	No	136 (56.7%)*	82 (60.29%)*	56 (39.71%)	
Clinic is too far	Yes	80 (33.3%)	34 (42.50%)	46 (57.50%)	0.200
	No	160 (66.7%)	88 (55.00%)	72 (45.00%)	
Based on testimonials received from friends/family	Yes	138 (57.5%)	56 (40.58%)	82 (59.42%)	0.009
	No	102 (42.5%)	66 (64.71%)**	36 (35.29%)	
From previous experiences	Yes	178 (74.2%)	94 (52.81%)	84 (47.19%)	0.467
	No	62 (25.8%)	28 (45.16%)	34 (54.84%)	
Self-medication is less expensive	Yes	144 (60.0%)	70 (48.61%)	74 (51.39%)	0.555
	No	96 (40.0%)	52 (54.17%)	44 (45.83%)	
Because of long waiting time in the hospital	Yes	146 (60.8%)	68 (46.58%)	78 (53.42%)	0.249
	No	94 (39.2%)	54 (57.45%)	40 (42.55%)	
Because of having enough medical knowledge	Yes	156 (65.0%)	92 (58.97%)*	64 (41.03%)	0.015
	No	84 (35.0%)	30 (35.71%)	54 (64.29%)	
Because of taking responsibility of own health	Yes	106 (44.2%)	38 (35.85%)	68 (64.15%)	0.003
	No	134 (55.8%)	84 (62.69%)**	50 (37.31%)	

*(p<0.05), **(p<0.01), and *** (p<0.001) were considered to be statistically significant, highly significant, and very highly significant, respectively.

The most non-healthcare participants used painkillers as their primary form of self-medication, while healthcare students tended to utilize antacids (Figure 2). In the case of consequences, 232 (96.66%), participants agreed about undesired symptoms of self medication; 118 (49.2%) agreed delay recovery, 174 (72.5%) agreed on ineffectiveness of some drugs after long use, 134 (55.8%) agreed that diagnosis of illness take longer due to self medication, and 158 (65.8%) self medication with drugs can result in diseases (Table 3).

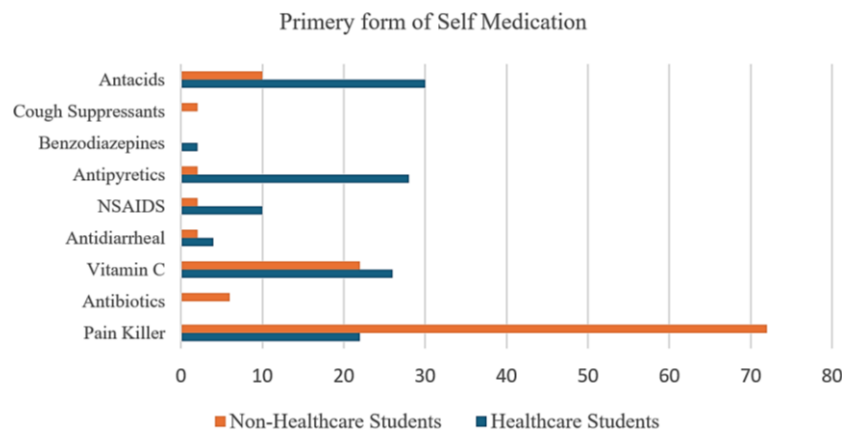


Figure 2. Drugs commonly taken with self-medication

Table 3. Showing the effect of self-medication

Statement	Categories	Number of participants			p-value
		Total (%)	Health science (%)	Non-health science (%)	
Any ever experience in any undesired symptoms with self-medication	Yes	232 (96.66%)	120 (50.00%)	112 (46.66%)	0.406
	No	8 (3.33%)	2 (0.83%)*	6 (2.5%)	
Recovery was delayed by self-medication	Agree	118 (49.2%)	38 (15.83%)	80 (33.33%)	0.000
	Disagree	122 (50.8%)	84 (35%)*	38 (15.8%)	
Some drugs are ineffective after long use	Agree	174 (72.5%)	88 (36.66%)	86 (35.83%)	1.000
	Disagree	66 (27.5%)	34 (14.16%)	32 (13.33%)	
Diagnosis of illness take longer due to self-medication	Agree	134 (55.8%)	60 (25.0%)	74 (30.83%)	0.146
	Disagree	106 (44.2%)	62 (25.83%)	44 (18.33%)	
Self-medication with drugs can result in diseases	Agree	158 (65.8%)	80 (33.33%)	78 (31.25%)	0.100
	Disagree	82 (34.2%)	42 (17.50%)	40 (16.66%)	

*(p<0.05), ***(p<0.001) were considered to be statistically significant, highly significant, and very highly significant, respectively.

4. DISCUSSION

Self-medication is the widespread practice for self-treatment by individuals without medical supervision which is regarded as a form of self-care [3]. Self-medication also includes buying medications from the pharmacy by resubmitting previous prescriptions, using extra and leftover medications at home, and asking friends and family for guidance regarding the medication [3]. The present study aimed to assess the knowledge and practices related to self-medication among undergraduate students, including both healthcare and non-healthcare respondents. The study finding revealed that majority of students were female and age group (21-22); nearly same age and gender distribution to those in a study [21]. Among the 240 valid responses, there was an almost equal distribution between healthcare (n = 122) and non-healthcare (n = 118) students. The majority were aged between 21–22 years (74.2%), and more than half were female (54.2%).

The results of similar research carried out in Bangladesh, India, and other developing nations are in line with the prevalence of self-medication found in this study [6], [22]. The level of knowledge discovered in this study, however, seems to be quite different [12], [23]. The usual favorable attitudes of students on self-medication are a reflection of their belief that it is a quick and easy way to treat minor ailments [24].

A substantial knowledge and practice gap was found when health-related and non-health-related students were compared. Paradoxically, health science students reported higher rates of self-medication despite generally having a better awareness of pharmacological indications and side effects. Overconfidence in pharmacological expertise and the belief that one is capable of self-treating could be the cause of this [25],

[26]. Non-health students, on the other hand, might rely more on online resources, prior prescriptions, or peer counsel, suggesting a lack of understanding of possible hazards.

According to this study's noteworthy findings, self-medication activities were common among both healthcare and non-healthcare students. The WHO defines self-medication as using over-the-counter or non-prescription pharmaceuticals without a prescription, and 39.17% of healthcare students agreed with this description, compared to 18.33% of non-healthcare students. Given that healthcare students exhibit more awareness, it points to a knowledge gap between the two groups. Similar findings were reported in a 2016 study [27], which showed that medical students had a better understanding of self-medication compared to non-medical students.

Self-medication habits are caused by a number of variables, such as easy access to drugs, prior experience with similar conditions, financial limitations, and a lack of time to see doctors. Peer referrals, commercials, and the media all have a significant impact. These elements are consistent with behavioral theories that indicate young adults' health-seeking behaviors are significantly influenced by perceived control and convenience [26], [28]. The survey projected that the most prevalent ones were prior experience (74.2%), lack of time (43.3%), and the perception of long hospital waiting times (60.8%). Additionally, more than half (57.5%) of the respondents were influenced by friends and family, and 60% believed self-medication was more economical. These findings are consistent with previous research [25], [28], which highlighted convenience, affordability, and accessibility as common motivations for self-medication among university students.

According to behavioral analysis, non-health students frequently depended on prior prescriptions or guidance from classmates and family, but pharmacy and medical students were more likely to utilize over-the-counter pharmaceuticals appropriately [29]. Concerns are also raised by the information sources used prior to self-medication. A significant portion of the respondents (50%) relied on family members, followed by pharmacists (17%), old prescriptions (17%), and drug leaflets or internet sources (6%). Only a very small percentage (1.67%) consulted physicians. This pattern has also been observed in earlier research [30], which found that students who self-medicate most frequently obtain drug information from classmates and pharmacists, reflecting limited reliance on official medical guidance.

Common ailments leading to self-medication were minor conditions such as headache (49.17%), fever (23.33%), and common cold/flu (16.6%), consistent with prior literature [24]. These symptoms are often perceived as non-serious and are likely to prompt individuals to avoid seeking professional consultation. A comparison of drugs used revealed that non-healthcare students predominantly used painkillers, while healthcare students showed a preference for antacids. This indicates some variation in drug choices, possibly based on perceived medical knowledge, consistent with a similar finding [31].

Despite the widespread practice, a considerable majority (96.66%) of the respondents acknowledged the potential negative effects of self-medication. Concerns included delayed recovery (49.2%), ineffectiveness of drugs after prolonged use (72.5%), difficulty in accurate diagnosis (55.8%), and the possibility of inducing new diseases (65.8%). These concerns echo the findings of studies [3], [31], which emphasized the risks associated with inappropriate drug use without professional supervision. Therefore, health science students properly understood the practice of self-medication as compared to non-health science students.

The current results highlight the critical need for focused health education initiatives at the university level in order to encourage non-health students to use drugs sensibly and perhaps lower inappropriate self-medication. Furthermore, campaigns to raise awareness of the risks of resistance and more stringent regulation of antibiotic sales are essential legislative interventions. The self-reported data of this study are one of its limitations. Additionally, the poll was conducted at a single school, which may not fairly reflect the behaviors of other college students nationwide.

5. CONCLUSION

Self-medication is common among university students in Bangladesh for both health and non-health science Departments. Headache was the most frequently treated disorder, with antacids being the most practiced medication, and family members were the main source of information. Reason of self-medication were previous experiences, and identified effects and complications were undesired symptoms, delayed recovery, ineffectiveness of drugs, and a diagnosis of illness takes longer. The health science students have comparatively positive knowledge, attitudes, and awareness of the effectiveness of self-medication as compared to non-health science students. Further research is needed to examine self-medication across demographic, socioeconomic, and geographic groups of mass people in Bangladesh.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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Ms. Tamanna Khatun		✓			✓	✓	✓			✓				
Chaity Sutar		✓			✓	✓	✓			✓				
Shabnaz Akter		✓	✓		✓	✓	✓			✓				
As-Ad Din Mahmood		✓		✓		✓	✓	✓		✓				
Sher Mostafa Sadiq Khan		✓		✓		✓	✓	✓		✓				

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [MMR], upon reasonable request.

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